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ABSTRACT

This study developed a classification scheme to critically compare performance assessment projects at higher education universities in North America and Europe. Performance indicators and assessment initiatives were compared using nine basic dimensions: (1) locus of control, (2) degree of governmental involvement, (3) focus of performance indicators, (4) sources of quality variation, (5) data selection, (6) intended audiences, (7) emphasis of use, (8) impact on student learning, and (9) relationship to institutional mission. A sample of six systems of generation performance indicators was examined using the nine criteria; the six systems are: National Education Goals (United States National System); Critical Choices (United States State System); Key Success Indices (United States Institutional System); The Committee for Vice Chancellors and Principals listing of performance indicators (British National System); Queen's University (Canadian Model); and MONEY magazine (United States Media System). Analysis found that performance indicators are mostly variations of input/output mechanistic thinking, that remarkable similarities exist between North American and European initiatives, that most models are unprepared to address conversion or process variables, that most are built on an assumption that outcomes can be attributed to something in the system or institution, and that the absence of linkages back to the learning environment leaves internal decisionmakers without information to correct causes that explain variations in quality. (Contains 92 references.) (JB)

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PERFORMANCE INDICATORS AND RATIONAL MANAGEMENT TOOLS: A COMPARATIVE ASSESSMENT OF PROJECTS IN NORTH AMERICA AND EUROPE

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PERFORMANCE INDICATORS AND RATIONAL MANAGEMENT TOOLS: A COMPARATIVE ASSESSMENT OF PROJECTS IN EUROPE AND NORTH AMERICA

ABSTRACT: Performance assessment projects have appeared on the landscape of higher education at public and independent universities in North America and Europe. This paper represents work in progress that develops a classificatory schema to critically compare these rational management initiatives along several dimensions, e.g., conceptual underpinnings, governance, levels of aggregation, usage patterns, and the like. The paper concludes with a discussion of the implications of these initiatives for organizational change and some lessons for institutional researchers in North America and Europe.

INTRODUCTION

Higher education in Europe and North America is under review from a variety of quarters to document the quality of effort in achieving educational goals. The notions of accountability and quality are at the forefront of discussions today because the basic metaphor guiding the dialogue about education has changed. Conceptually, higher education has moved from a type of "public utility" to a "strategic investment" (Ewell, 1991). Effective performance has become a part of the contemporary lexicon about excellence and quality as the public debates society's return on its investment.

This paper describes the current state of affairs in the design and implementation of assessment mechanisms in a variety of settings in North America and Europe. Second, these performance indicator and assessment initiatives are compared in terms of nine basic dimensions including (1) locus of control, (2) degree of governmental involvement, (3) focus of performance indicators, (4) sources of quality variation, (5) data selection, (6) intended audiences, (7) emphasis of use, (8) impact on student learning, and (9) relationship to institutional mission. The paper closes with a discussion of implications for institutional researchers, and for the higher education communities in North America and Europe.

OVERVIEW

Critics have begun to examine meanings about excellence and quality that have been developed by stakeholders in higher education. For example, assessment projects are beginning to move beyond traditional reputational and resource approaches to a "talent development" perspective (Astin, 1985; Jacobi, Astin, and Ayala, 1987). This changed emphasis is part of a larger movement to gradually introduce a rational management perspective in the operation and governance of higher education. An emphasis on strategic investment has created its own architecture that, in turn, has shaped the design and implementation of performance assessment systems. Other rational management tools under the broad umbrella of quality assurance carry such labels as student achievement/outcome assessment, faculty productivity measurement, and administrative performance review.

Whether symbolic or substantive, performance indicators as a class of rational management quality assurance tools have been introduced by a host of agencies. State, federal or national governments in many countries are calling for assessment systems through executive initiatives or accountability legislation. Regional or national administrative agencies, such as accreditation review activities, have presented a wide range of approaches to accountability measurement.

More recently, mass media publications in Europe and North America have discovered a political vacuum in the higher education environment and have created numerous "reports" that mascarade as measures of quality. For example, Money magazine, US News and World Report, Barron's Profiles of American Colleges, Peterson's/AGB Survey of Strategic Indicators, Maclean's, and the "league tables" in the United Kingdom are evidence of the growing popularity of public rankings. From some perspectives, this unfortunate movement toward undisciplined consumerism appears to be gaining momentum. Although this approach has been labeled

"fundamentally dangerous" and "largely devoid of meaning," (Webster, 1992) their popularity is growing and their effect on institutional decision making is increasing.

A rich variety of performance assessment initiatives has been launched in the past twenty years. A sample of the range of programs in Europe include: OECD's International Education Indicators project (Bottani and Delfau, 1990); Great Britain's Management Statistics and Performance Indicators (Jarratt Report, 1985; Committee of Vice-Chancellors Principals/Universities Funding Council, 1990; Ball and Halwachi, 1987; Gordon, 1992), and projects in Holland, Germany, Finland, Netherlands, and Sweden (Acherman, H. van Welie, L. and Laan, C., 1992; Maassen and Van Vught, 1988; Frackmann, 1987; Hölttä, 1988; Mertens and Bormans, 1990; Pollitt, 1989; and among others, Kells, 1990).

Projects in the United States from state and federal developments are illustrated by the California State University efforts (CSU Advisory Committee on Student Outcome Assessment, 1989), Missouri's Task Force on Critical Choices for Higher Education (Coordinating Board for Higher Education, 1992), Tennessee's Performance Funding (Banta, 1986), Ohio's Selective Excellence Program (NCHEMS, 1993), regional accrediting initiatives (North Central Association, 1993); and among others, the US Congressionally-mandated indicator system (National Center for Educational Statistics, 1991). Several Canadian initiatives are underway to develop and implement performance indicator systems (Organization for Economic Co-operation and Development, 1988; Snowdon, 1993; Association of Universities and Colleges of Canada, 1993; Smith, 1992).

The U.S. government entered the debate on performance assessment with its much-publicized A Nation at Risk (US Department of Education, 1983), and continues to expand its intrusion into the affairs of higher education institutions. For example, the Student Right-to-Know and Campus Security Act (PL 101-542) responds to the growing consumer movement in education by requiring the posting of graduation rates

of a school's first-time, full-time freshmen within a six-year period of entry. More recently, the reauthorization of the Higher Education Act (1992) in the 102nd Congress critically examined the role of accrediting bodies in determining the financial aid eligibility of institutions. Part H of the amended act, known as the Program Integrity Triad, introduces a variety of measures involving state postsecondary review of institutional financial aid and program integrity.

Accrediting agencies and professional licensure bodies are additional forces that keep the quality assurance movement at the forefront of higher education. Regional accrediting bodies, however, have moved beyond their traditional view of performance in recent years. The North Central Association, for example, has shifted its focus from the institution's capacity to achieve its mission to accomplishments as expressed by student achievement. Simply stated, the accrediting days are gone when site visitation teams would be preoccupied with resources, e.g., counting books in the library or the number of Ph.D.'s on staff; the emerging questions for these assessors focus on what the students have done or achieved as a result of having experienced the institution. This changed emphasis is part of a larger movement to gradually introduce quality assurance assessment in the operation and governance of higher education.

BASIC CONCEPTS

Before attempting a comparison of performance assessment initiatives across two continents, this section will provide a clarification of vague and conflicting terminology related to this latest, and apparently, enduring movement in higher education. This section will examine the concepts of quality, assessment, institutional effectiveness, student outcomes, and process to inform the development of a series of dimensions for the systematic comparison of performance indicator systems.

QUALITY: Given the multiple stakeholders in higher education (faculty, students, staff, alumni, private and public sector employers) and their multiple visions of quality assurance, it is hardly surprising to find a wide variety of conceptualizations of quality. Some observers are led to the conclusion that "reaching consensus about exact definitions for quality is virtually impossible, and it is best to avoid having to do so" (Massey and Wilger, 1992, p. 364). Others have suggested that two cultures exist in the academy, with a corporate view that differs from the academic culture (Newton, 1992). When viewed as the mantra of management (e.g., the Total Quality Management or TQM perspective), quality is primarily concerned with exceeding the needs of the consumer (Deming, 1986). The "consumer" and quality are situationally-bounded, that is, during one transaction an individual may be a beneficiary of service, while in another they may be contributing to a service unit's realization of quality. The implication is that TQM defines quality in a way that ties indicators to specific contexts. (Chaffee and Sherr, 1992).

Much of the literature links quality assessment to basic design principles, e.g., organizational mission and goals, needs and program components. Thus, some students of continuous quality improvement are concerned with fidelity to design or what has been called "conformance to requirements" (Crosby, 1979). For Bogue and Saunders (1992, p. 20) quality is:

> Conformance to mission specification and goal achievement--within publicly accepted standards of accountability and integrity.

This definition is particularly useful for two reasons. First, such a definition helps focus debate and shared thinking on the purposes of the enterprise, or what the institution intends to achieve. Second, such a conceptualization of quality encourages public disclosure of mission, goals, and performance results:

> Quality assurance in higher education is a mosaiac, like the higher education enterprise itself. Mechanisms such as accreditation, professional licensure, program review, and outcomes assessment each have a distinctive part to play--and, if infused by a pervasive attitude of concern about students and society, they will sum to a condition that can rightly be labeled 'quality' (Ewell, 1992a).

ASSESSMENT: Conformance to mission and goals is the substance of assessment. It may be referred to as an "honest match" between what higher education institutions say they will do and what they deliver. For this study, assessment can be defined as follows:

> The process of measuring, by some appropriate means, the presence or absence of expected educational results.

These expected educational results are what Ewell (1992b) refers to as the objects of assessment. Expected results flow directly from the mission and goals of the institution, and can be identified at three or more levels, such as the institution, programs, and individuals.

Equally important, assessment involves methods by which evidence informs an observer about the extent to which conformance has occurred. Ewell (1992b) refers to this second side of assessment as the processes of assessment. To illustrate, suppose that one institutional goal was as follows:

> The University seeks to prepare individuals who can act as transforming agents in society.

The expected educational results that flow from this goal statement might include a range of qualities, such as citizenship skills, basic problem-solving and communicative skills, and knowledge of a discipline or profession. Each of these goal areas are further refined into measurable indicators through the process of operationalization.

This deductive process leading toward measurable indicators is a heavily value-laden activity. The normative character of the assessment process is understandable

not only because of the intimate connection between institutional goals and indicator construction, but also because of the effect of the public policy process:

> Governmentally controlled indicators have tended to reflect each historical era's predominant political and social ideologies, and measures have been developed in response to (or occasionally in reaction against) prevailing political, social, and economic goals for schooling (Darling-Hammond, 1992, p. 237).

Government involvement in assessment plans may lead to a centralization of control over indicator development, and discourage institutions from maintaining diversity or distinctiveness in their institutional mission. As Ball and Wilkinson (1992, p. 11) remarked about the British model:

> The danger of a national system of performance indicators such as those produced by the CVCP is that it will inevitably tend to nationalize institutional policy making.

It is interesting to note that in England and Wales, efforts are underway to introduce a national assessment program along with a national curriculum for children at ages 7, 11, 14, and 16 (Torrance, 1993). Whether or not this precollegiate effort will create a force on postsecondary educational practices in Great Britain remains to be seen.

Another dimension of indicator development suggesting a normative bias in the process is the tendency to embrace an item because it is easily measured (Elton, 1987; Ball and Wilkinson, 1992). That is, if data are available, they must be measuring something. Ease of quantification overcomes the need to have a conceptually defensible system of indicators. Simply stated, any method that is unguided by basic theory to assist the selection process lays the groundwork for rank empiricism of the highest order. The orientation becomes, "if it's measurable, it's worth something."

The tendency to gravitate toward easily quantifiable measures, coupled with the potential for centralizing measures (i.e., state or national policy making), may create a legislative climate that supports the "quick fix" approach. Because the policy process is

so fluid and demands are cacophonous and continuous, the drive toward finding "the number" is highly seductive. When the legislative debate during appropriations hearings in legislatures focuses on the number of students graduating, the number of children served, the expenditures per FTE student, and the like, the quantitative expression of a preferred state of affairs is easily and readily translated into a budgetary target.

INDICATORS: There exists a rich array of orientations toward indicator development and use. Indicators are "individual or composite statistics that reflect important features of a system, such as education, health, or the economy" (Darling-Hammond, 1992, p. 236). Most indicator systems function to (a) monitor the broad context within which a policy is operative; (b) provide benchmark measurements against specified goals; (c) forecast the emergence or existence of new problems; and (d) permit the development of systematic explanations for the existence of problems.

Regardless of their functional emphasis, postsecondary educational indicators continue to shape the policy debates and agendas of the governments of Europe and North America. In the United States, for example, much of the historical dialogue in postsecondary education centered on "access" indicators (proportion of minority enrolled), then later, the proportion graduating within a six-year period. As the indicator development process continued to grow, so did the sheer number of indicators. For example, Queen's University in Canada tracks 20 measures in four domains (Smith, 1992). The CVCP system in Great Britain includes fifty-four measures of the higher education system. The University of Miami's Key Success Indices (KSI) tracking system monitors 126 indices against prior month, year and, where appropriate, current budget levels (Sapp and Temares, 1992).

Performance indicators are a specialized subset of system indicators. They are used to assess the relative position of a system against some standard or reference point, such as an organizational goal (Cave, Hanney, and Hogan, 1992). While introduced to higher education far earlier in the United States than in Europe, several common characteristics exist regardless of the setting: (a) They tend to be expressed quantitatively, (b) encourage a comparative application through the use of rankings regardless of their methodological limitations, (c) are classified according to functions or stages (input, process, output), and most importantly, (d) are developed in the absence of a robust conceptual framework. In the absence of agreed upon statements of postsecondary goals, however, the development of comparative assessments is very difficult (Cuemin, 1987).

Some have argued for "families of authorities," that is, institutions with shared characteristics, to form comparative sets of schools (Ball and Wilkinson, 1992). Queen's University in Canada recommends selecting comparable institutions on the basis of minimum FTE undergraduate and graduate enrollments and sponsored research threshholds (Smith, 1992). Others have warned that a national system of indicators undermines the distinctiveness of institutional missions and contexts (Ball and Wilkinson, 1992).

Since performance indicators tend to be developed in relationship to goals, early writings distinguish between outcome and process goals. Outcome performance indicators are "substantive objectives of the institution, [the latter] relate mainly to the internal performance of the organization" (Ball and Halwachi, 1987). We will take a closer look at process variables later on in that section on basic concepts.

INSTITUTIONAL EFFECTIVENESS: In the development of indicators as management tools, much of the design language seems to borrow from the industrial model, drawing

important distinctions among such terms as organizational effectiveness, efficiency, and economy (Sizer, 1989). Equally significant, the basic governance structure of higher education does not lend itself to the direct application of the industrial input/output model, with its dual system of control between administrative and professional cultures (De Jager, 1992).

Institutional effectiveness requires "that we document whether or not our educational programs contribute to the attainment of important educational goals over and above the 'input' characteristics students bring to college" (Hanson, 1992). The range of assessment objects to determine levels of institutional effectiveness is as broad as the institution's goals themselves. Typical objects include student developmental change (quality and accessibility of counseling and advising services), faculty accomplishments (published scholarship, research and development achievements, public and community service effects), service to specialized constitutencies (targeted programs for legal assistance to the poor), and institutional climate (satisfaction levels, financial capacity, and the like). Student outcomes, of course, are a component of institutional effectiveness. To move toward a more inclusive academic achievement criterion in accreditation decisions, one regional organization declared that "evaluation of overall institutional effectiveness is dependent upon the institution's documentation of how well it is accomplishing not only its educational purposes, but also all other purposes and objectives needed in order to fulfill its mission" (Commission on Institutions of Higher Education, 1993).

STUDENT OUTCOMES: Assessment of student achievement is not something new. On the contrary, it was common in 19th century colleges to require a fourth year oral examination as a method of validating the learning of the graduates (Marchese, 1987). In post-WWII American higher education, validation through performance gave way to

credit-hour accumulation as a proxy measure for competency attainment in undergraduate areas in other than the professional programs.

Student outcomes could be broadly defined as:

> The wide range of phenomena that can be influenced by the educational experience (Jacobi, Astin, and Ayala, 1987, p. 19).

This unwieldly definition may be refined as follows:

> The specific set of highly valued characteristics which the university, school, or academic and co-curricular support services claim to instill by means of their programs (Nedwek, 1992).

For example, if an institution seeks to prepare graduates with a demonstrated skill in written and oral communication (a goal statement), then an expected student outcome might be that "prior to graduation, each student will demonstrate expository writing with correct grammar, punctuation, and logical organization....and [will demonstrate] the ability to organize and deliver a clear and substantive presentation (Southern Association of Colleges and Schools, 1989, pp. 26, 28).

It is left to the key stakeholders to respond to basic questions about expected educational results such as:

1. What knowledge must be mastered?
2. Which skills are highly valued and must be demonstrated, e.g., problem-solving, oral communication, working with groups, or what? Equally important, at what levels of proficiency should these skills be demonstrated?
3. Which student attitudes and values are to be nurtured? Should they become conditions of graduation?
4. When should a given quality be present? Which skills are manifest after the core curricular experience, at graduation, one year out, five years or when?

In student outcomes we need to look not only at the "what" questions, but the "how" issues as well. For example, assessment of student performance has taken many forms. Inside or outside the classroom, assessment efforts have included standardized tests, robust simulations, "rising junior" exams, senior exams, alumni surveys, graduating senior interviews, portfolio analysis, self-assessment, and juries of faculties or outside professionals (Hutchings and Marchese, 1990)

The NCA's recent statement on academic achievement assessment provides an instructive framework:

> The Commission on Institutions of Higher Education of the North Central Association of Colleges and Schools reaffirms its position that assessment is an important element in an institution's overall evaluation processes....Assessment is not an end in itself, but a means of gathering information that can be used in evaluating the institution's ability to accomplish its purposes in a number of areas. An assessment program, to be effective, should provide information that assists the institution in making useful decisions about the improvement of the institution and in developing plans for that improvement.....With this statement we make explicit the Commission's position that student achievement is a critical component in assessing overall institutional effectiveness (Commission on Institutions of Higher Education, 1991, p. 393).

The typologies of student outcomes are as diverse as the measurements themselves. Some argue for a model based on skill developmental areas, such as cognitive skills, attitudes, and behaviors after college (Ewell, 1985). Another sets forth individual goals and societal goals (Bowen, 1978); or cognitive and affective outcomes (Astin, 1991). An ambitious application is Alverno College's competency-based liberal arts program that assesses eight outcomes ranging from personal effectiveness skills to citizenship training. Bogue and Saunders offer a crucial insight about the Alverno approach. They state (1992, p. 169):

> The strengths of the model are that it is specific to the educational goals of the institution, that it involves the allegiance of the faculty development and implementation, and that it is directly linked to the curriculum and intructional processes of the institution.

Thus, Alverno College represents one of the few models that provides a clear "fit" between the curriculum and outcomes. Equally important, this model integrates institutional goals with process, outcomes, assessment, and faculty development. The result is a model that demonstrates quality in performance (Townsend, Newell, and Wiese, 1992).

PROCESS: Although institutional effectiveness and its various components are core concepts in the quality/accountability movement, the least understood notion is the linkage between inputs and outcomes, that is, process variables. One of the major leaps of faith in the field of outcome assessment is the often untested assumption that the academic program, institution, or organizational culture was in fact responsible for, or explains variations in, student outcomes and performance. This leap of faith disregards the question of whether or not the intended learning actually occurred. Process assessment attempts to "get behind" outcomes to enhance the credibility of the claims of success (Hutchings, 1990).

The literature reflects considerable definitional confusion about process. From a program evaluative perspective, process refers to the "treatment", or what actually happened during the program (Rossi and Freeman, 1989). When applied to educational programs, this evaluative orientation asks such questions as the degree of conformity with program design, the extent of coverage or exposure to the program, and among others, the timing and logic of the individual elements. Simply stated, the focus is on the "what" question, or what specific contribution did the institution and program make to the achievement of student outcomes?

Process assessment is essential to document the degree of fidelity to the original design. It generates baseline information about what service or curriculum was provided to which students by faculty of varying levels of competence. The problem of

the "nonprogram" in the delivery of services has been well documented in the evaluative literature (Rossi, 1978). For example, the use of rising junior exams as a component of intermediate outcome assessment may have limited utility if a large proportion of the freshmen or sophomores are transfers from other institutions. The increasingly common pattern of mobile freshmen and sophomores suggests that a lessening proportion would have experienced the same core curriculum. Under the condition that the treatment (i.e., core curriculum) was not experienced by the vast majority of a group of upper classmen, how can one attribute student outcomes/achievements to the program? In reality, the program never happened.

A recent discussion about quality in higher education makes the point about process even more convincingly. As one student of Deming remarked (Dill, 1992, p. 43):

> Deming emphasizes that the improvement of quality does not come from inspection, or what in education might be termed assessment, but from design--from the continuous improvement of the underlying processes of production.

Deming's point is critical to understanding the need for process assessment that incorporates design review. A focus on design is essential to understanding TQM's view of quality by reducing variation; in this case, variation in program delivery. Thus, Deming's notion of "common causes" as sources of variation in quality provides a rich base for building process performance indicators, such as poor design, poor materials, inefficient technologies, ineffective supervision, and the like (Dill, 1992).

In many situations, assessment lacks coherence because of the degree of measurement fragmentation of programs, policy and process (Banta, 1993). In Europe, for example, universities in the OECD countries appear uninterested, if not unable, to develop interests of faculty beyond their disciplinary home (OECD, 1987). The pattern in North America, especially the United States, is equally uneven. The

individualism and autonomy of the academic culture in the American tradition undermines the homogeneity of the curriculum and, in turn, the ability to account for the variance in outcomes. Paradoxically, there exists a natural tension between the drive toward coherence of process and faculty autonomy. However, recent work in the development of performance indicators in Scotland provides an example of process assessment measurement. A Scottish initiative identified eleven distinct dimensions for the periodic assessment of the learning environment (Scottish Higher Education Funding Council, 1992). This approach might lend itself to sampling techniques of curricula, syllabi, and the like that can be "scored" into a programmatic measure (the percent of programs within an institution that meet minimum standards).

An alternative perspective on process involves a look at the provision of services. Teaching evaluations and client satisfaction measurement are popular expressions of this orientation. This perspective promotes the "market" orientation of organizational control. Although client satisfaction measurement is an attractive approach to process assessment, research suggests that satisfaction is a function of the congruence between expectations and experience. Process measures, however, seldom focus on both expectations of service and the actual experience of it (Steers and Porter, 1983; Neal, 1990).

A third perspective involves the introduction of conversion ratios as proxy performance indicators. Ratio analyses have become very popular in assessing an institution's financial condition. Their growing popularity is not surprising, given the proportion of corporate executives that are members of college and university boards of trustees. They have a working familiarity with these tools. For example, the ratio of expendable fund balances to total expenditures and mandatory transfers is used to gauge an institution's strength relative to its operating size (KPMG Peat Marwick, 1990). The use of process or operating performance indicators received considerable impetus from early work in Great Britain. Indicators included staff/student ratios,

class sizes and the like (Jarratt Report, 1985). Dutch polytechnics have been assessed using a variety of cost measures, such as average expenditure allocated to instruction, support staff, student services, and the like (De Jager, 1992). Non-standardized recording techniques, however, undermine the comparability of financial ratio analyses (DiSalvo, 1989).

Process measures are far less likely to generate consensus as performance indicators than "input" or resource indicators. University management statistics in Scotland, for example, include a wide array of resource indicators, but little in the way of teaching performance (Gordon, 1991). When process measures are part of a discussion of faculty productivity, the concept of faculty time is highly influenced by the academic culture, especially group norms and "perceived property rights" (Massey and Wilger, 1992). Simply stated, time-on-task measures (contact hours, advising and mentoring) are strongly influenced by shared beliefs about the faculty's perception of their environment.

The basic concepts investigated in this section provide key issues to consider when developing performance indicators. Consequently, these concepts also assist in the development of criteria for the assessment of indicator systems. The key issues raised in this review of basic concepts include:

Quality:	institutional mission; goal achievement
Assessment:	measurement; expected results
Indicators:	quantitative statistics; comparative ranking; institutional functions; conceptual framework
Effectiveness:	educational goals; mission objectives
Outcomes:	valued characteristics; demonstrated skills; methodology
Process:	treatment; contribution; design; variation

These issues provide an extensive foundation for the construction of criteria for indicator assessment. The following section discusses the dimensions selected for comparison.

COMPARATIVE CRITERIA

To assist in the assessment of performance indicator initiatives in Europe and North America, nine dimensions were selected as comparative criteria. These dimensions include:

1. Locus of Control
2. Degree of Governmental Involvement
3. Focus of Performance indicators
4. Sources of Quality Variation
5. Data Selection
6. Intended Audiences
7. Emphasis of Use
8. Impact on Student Learning
9. Relationship to Institutional Mission

Each dimension represents a critical concern raised in the research literature on performance assessment or quality management. The combined framework will assist in understanding the characteristics of individual initiatives, while permitting comparative analysis between initiatives.

Locus of Control: De Jager (1992) asserts that higher education's dual system of governance (administrators and professions) limits the usefulness of traditional management techniques in many higher education settings, that is, the strategic "control" mechanisms. Ouchi (1980) classifies these mechanisms into three categories: clans, bureaucracies, and markets. Clans seek to control organizational behavior through shared values, traditions, and social cultures, such as those found among faculty in departments, schools, or universities. Bureaucracies control through hierarchical authority and rules, such as state boards or accrediting agencies. Markets

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rely on forces, such as competition and pricing, to shape organizational behavior. Dill (1992) characterizes the British system of higher education as largely a clan model of control, while other European systems rely on a more bureaucratic approach. The American system has evolved from a clan form of control, through bureaucratic approaches, and now exhibits a market-driven mechanism. Part of the issue of locus of control is the role of faculty in establishing assessment criteria and methodology. Faculty organizations in the United States are beginning to express their concerns over standards for mandated assessments at the state level (Council of the American Association of University Professors, 1991).

Degree of Governmental Involvement: The role of government in the affairs of the academy is shaped by a variety of environmental factors. Two of the more powerful forces are the relative scarcity of resources and the "political culture" of the state and its resultant governance pattern (Ewell and Boyer, 1988). The degree of governmental control over performance indicator systems and other assessment schemes is colored by policy makers perceptions of "the problem" and "the solution." These perceptions, in turn, shape the form and substance of assessment systems. For example, in the state of Missouri, the initial impetus for assessment was portrayed by a ideological governor as an element of the reform of higher education. The relatively centralized and active centralized decision making in states such as South Dakota and New Jersey stand in sharp contrast to efforts underway in Virginia, or the balkanized actions in Colorado (Ewell and Boyer, 1988).

Government involvement can range from direct to indirect to a laissez-faire position. The most penetrating or **direct** degree of involvement would be state mandated assessment systems with prescribed methodologies for performance indicator design and use. **Indirect** control is characterized by a degree of delegation to postsecondary institutions that allow for implementation diversity within the context of

broad goal statements. A **laissez-faire** position descibes the condition where the state or national leadership is either disinterested in the educational policy arena, or where coordinated efforts are largely voluntary in character. While European and American State systems of higher education share the characteristic of direct governmental control and funding, even the American "independent" sector faces indirect governmental involvement in the assessment of institutional performance. Through the reauthorization of the Higher Education Act (1992), the U.S. Congress has introduced new opportunities for state review of a wide variety of institutional measures. Some private institutions, however, may avoid this review and will continue a more laissez-faire relationship with government agencies.

Focus of Performance Indicators: Prior to the selection of data to create performance indicators, the researcher must determine the underlying focus of the planned analysis. A number of observers (Dochy and Segers, 1990; Bell and Wilkinson, 1992) assert that performance indicators must be related to the functions and goals of the institution. In relationship to institutional goals, the focus of performance indicators may be on documenting **effectiveness** (how well the institution accomplishes its goals), increasing **efficiency** (what it costs to achieve those goals), or improving **economy** (how to save money, yet achieve the goals). The process of developing indicator systems should begin with a the development and application of a conceptual framework that is "based on research results and the interests of policymakers and educators" (Blank, 1993).

Sources of Quality Variation: Deming's (1986) philosophy of continuous and systematic improvement of organizational production and service stresses the importance of reducing variation in production design and processes. Dill (1992) contrasts institutional assessment of **special causes** of variation, which are attributable

to individuals, with **common causes**, which are attributable to poor institutional processes, such as design, materials, technologies, and supervision. Dill contends that assessment of special causes will have little effect on organizational performance, but assessment of common causes, or processes, will have a substantial impact on the quality of the institution. Chaffee and Sherr (1992) characterize special causes as exceptions to the normal process that require quick detection and administrative action to eliminate. Common causes are inherent in every process and are not attributable to the worker. To eliminate common causes, Chaffee and Sherr call for a data-driven, scientific approach that involves participants and crosses organizational boundaries.

Data Selection: Recognizing the need for comprehensive data to support performance assessment, a number of authors (Ball and Halwachi, 1987; Scottish Colleges, 1992; Chaffee and Sherr, 1992) call for the selection of **input**, **process**, and **outcomes** data elements. Johnes and Taylor (1990) suggest that most institutions concentrate primarily on input measures when assessing quality. The student outcomes assessment movement in the U.S. has increased American awareness of outcomes data as well, but has created few process measures. Chaffee and Sherr (1992) emphasize the need to develop process assessment to identify common causes of variation. While numerous performance indicator ventures assess input and output phenomena, little is done with process variables. Often the problem with process measures is the lack of valid and reliable data, coupled with the cultural norm that faculty are not required to publicize their methodology of assessment in various learning situations.

Intended Audiences: Higher education institutions produce performance indicators for specific audiences (board, government, faculty, students). The following

typology categorizes these audiences by relationship to the institution and anticipated outcome of the information:

Internal Decision-Makers (Administration/Faculty)
Internal Policy Makers (Board)
External Decision-Makers (Parents/Students)
External Policy Makers (Government Agencies/Accreditation Bodies)

Emphasis of Use: The quality improvement literature (Deming, 1986; Dill, 1992; Ewell, 1992a) suggests that performance indicator systems must move from certifying competence to improving institutional quality. As discussed above, Darling-Hammond (1992) offers four primary purposes for performance indicators, e.g., (1) Monitoring general conditions and contexts; (2) Identifying progress toward specified goals; (3) Illuminating or foreshadowing problems; and (4) Diagnosing potential sources of identified problems. In addition to these four purposes, two additional purposes can be served. A fifth use is tied to institutional funding, namely, incentive funding and resource allocation. In Great Britain, for example, the relationship between indicators and resource allocation decision making was expressed in the mid-1980's (Green Paper, 1985).

A sixth use centers on political gains. The policy analysis literature has documented political use as one of the major applications of information (Ewell, 1989; Kalsbeek, 1991; Leviton and Hughes, 1981; Nedwek and Neal, 1992; Weiss, 1977). Performance indicator systems can serve the political agenda of decision makers who are concerned that they are "doing something" about postsecondary education. The danger is the degree of penetration or intrusion by the state into the affairs of postsecondary education (Newman, 1987).

In summary, the types of use under this criterion include: (a) monitoring conditions, (b) measuring progress, (c) forecasting problems, (d) diagnosing problems, (e) allocation decision making, and (f) political symbolism.

Impact on Student Learning: Perhaps the most frequently overlooked dimension in the comparative analyses of performance indicator systems is the effect of a model on student learning. This dimension is offered because of the need to remain sensitive to the primary objective of the industry, namely, facilitating student learning.

Quality assurance models imply that a system can have direct, indirect, or assumed effects on student learning. **Direct** impact exists where the model intentionally yields data that validates or provides evidence of student achievement. **Indirect** impact represents models that promote a "culture of evidence" that fosters a concern about variations in outcomes and linkages back to program delivery. **Assumed** impact represents the most common model; one where student outcomes represent a leap of faith from the program outline. Perhaps the most familiar leap of faith is a model where productivity improvements somehow yield enhancements to the quality of the academic enterprise (Massey and Wilger, 1992).

Relationship to Mission: Performance indicator models vary in the degree to which they are related to programmatic, institutional or system-wide missions. The relationship may be direct, indirect, or assumed. A **direct** relationship exists where the mission statement of the institution promotes the distinctiveness of the enterprise. Thus, the statement should include clear goals about intended outcomes, clientele to be served, and steps to insure achievement of the mission (Newsom and Hayes, 1990-91; Bogue and Saunders, 1992). An **indirect** relationship exists where the mission statement and performance assessment system suggest standards, but with less precision. **Assumed** relationships occur where mission articulation is independent of performance indicator models.

DATA ANALYSIS

Following a review of institutional reports, government documents, and the research literature on evaluation and assessment, a sample of approaches to generating performance indicators was examined using the nine comparative criteria. The six systems in the sample were chosen as representative of various segments of higher education.

National Education Goals: U.S. National System

Critical Choices: U.S. Statewide System

Key Success Indices: U.S. Institutional System

CVCP: European National System

Queen's University: Canadian Model

MONEY Magazine: U.S. Media System

Table One summarizes the findings of the analysis. In addition, the narrative provides a separate assessment of each system, with an evaluation of strengths and weaknesses inherent to each approach. The analysis concludes with a discussion of similarities and differences between the systems, highlighting major implications for researchers and administrators.

TABLE ONE: NINE CRITERIA AND SAMPLE MODELS

Criteria	Great Britain CVCP	Critical Choices/ Missouri	University of Miami	Queen's University	National Education Goals	Money Magazine
1. Locus of Control - Clan, hierarchical, or market organizational control emphasis.	Hierarchical	Hierarchical	Hierarchical	Hierarchical	Hierarchical & market	Market
2. Degree of Governmental Control - Degree of governmental involvement: direct, indirect, laissez-faire.	Direct	Direct	Laissez-faire	Indirect	Direct	Not applicable
3. Focus of Performance Indicators - Institutional effectiveness, efficiency, or economy.	Efficiency	Effectiveness & Efficiency	Effectiveness & Efficiency	Effectiveness	Effectiveness	Implied Effectiveness
4. Sources of Quality Variation - Emphasis on special or common causes.	Common	Special	Common	Unknown	Common	Unknown
5. Data Selection - Examines data capture methodologies and levels of aggregation: input, process, outcomes.	Emphasizes input	Emphasizes input	Input & Outcomes	Input & Outcomes	Outcomes	Input
6. Intended Audiences(s) - Internal or external decision-makers and policy-makers.	External policy-makers	Internal & External policy-makers	Internal Decision-makers	Internal & External Decision-Makers	External Policy-Makers	External Decision-makers
7. Emphasis of Use - Monitoring, measuring progress, forecasting, diagnosing, allocating, symbol manipulating.	Monitoring	Symbolic	Monitoring & Forecasting	Monitoring	Measuring progress	Symbolic
8. Impact on Student Learning - Intended impact: direct, indirect, or assumed (the leap of faith).	Assumed	Assumed	Assumed	Assumed	Direct	Assumed
9. Relationship to Institutional Mission - Direct, indirect, or assumed linkage between mission and system design.	Assumed	Indirect	Assumed	Indirect	Indirect	Assumed

Great Britain's CVCP: Since 1987, the Committee of Vice-Chancellors and Principals (CVCP) has published an annual listing of University Management and Performance Indicators for all universities in Great Britain. Originally designed by chief academic administrators to strengthen the public image of the university system, this listing has attracted attention from government officials and funding bodies for monitoring and resource allocation. The performance measures are predominantly input variables; two indicators are outcome variables (graduation rates and destinations of graduates). Cave, Hanney, and Kogan (1991) consider the system more useful in assessing efficiency than effectiveness. The system assumes an impact on student learning through adequate resources and measures increased performance through higher graduation rates.

Critical Choices: This 24 goal initiative is the work of a state coordinating board with the strong support of the former governor. The majority of the goals and performance indicators are either prescriptions or admonitions about resources and resource allocation. Government involvement is especially direct through restrictions on admissions policies. Data are developed at the institutional level for comparative use by internal and external decision makers at the system level, especially among public institutions. Although the relationship between performance and incentive funding is mentioned (Goal 20), the role of the coordinating board in the funding process may be ineffective and somewhat symbolic. The impact on student learning is assumed to result from changes in resource allocation decisions. Finally, in an unusual interpretation of the role of institutional missions, the model encourages mission statements to represent admissions standards rather than programmatic initiatives. Inter-institutional comparisons are only beginning to be implemented. The Association of Universities and Colleges of Canada (AUCC, 1993) may become a major player in developing indicators and the rationale for comparative reporting.

University of Miami's Key Success Indices: This senior management tool represents one of the more detailed efforts at monitoring performance across the range of institutional functions. Primary focus is improvements to the effectiveness and efficiency of the university. Data are collected at the systemic level for use by internal policy makers. Use seems to emphasize monitoring existing conditions against prior year YTD data and some concern about forecasting future trends. Although the model deals with a rich variety of indicators, the connection to student learning and institutional mission is assumed.

National Education Goals: The U.S. Department of Education published a list of National Education Goals in 1992. Goal 5 addresses the need for all Americans to possess the knowledge and skills necessary to compete in a global economy. Two objectives under Goal 5 call for the creation of institutional performance indicators: (a) student retention and completion rates, especially among minority students; and (b) demonstrated outcomes in critical thinking, communication, and problem solving skills. Institutional data will be combined into state reports for comparative analysis. While still under development, the plan calls for the development of an assessment system to measure the effectiveness of postsecondary education. This plan faces a number of challenges, such as:

1. How to quantify "world-class standards."
2. Developing valid measures of skill development.
3. Differentiating between goal achievement and skills development (product vs. process assessment).
4. Maintaining diversity of mission while imposing national "standards."

Queen's University: This model emerges from a twenty year history of higher education data capture and dissemination practices in Canada. Organizational control is hierarchical with relatively indirect influence of provincial government. Indicators emphasize effectiveness measurement, although a few appear related to public relations and diversity goals (gender balance, geographic diversity). Vast majority of measurements examine resources (qualities of students and reputations of faculty). Some measures may be proxies for process variables (expenditures per FTE student for student services, libraries, acquisitions, central computing). Intended audiences flow from a marketing orientation of the indicators (students selection of an institution), and from a monitoring perspective (tracking resources). Relationship to student learning measurement is assumed. The relationship to institutional mission is somewhat indirect. The connection is more direct for indicators of research productivity.

Money Magazine College Guide: This guide represents the market driven approach to performance indicator tools. Although a host of substantial methodological problems are associated with this model (Webster, 1992), the key characteristic is the tenuous correlation between the perception of quality and "hard data on product performance" (Bogue and Saunders, 1992, p. 66). The differences between these two sources of data about quality help us understand the current political debate on rankings. Typical of market sensitive tools, this model emphasizes institutional resources (percent of freshmen with high test scores, student/faculty ratio, entrance exam results, student services budget). Data to support rankings of the "best buy for the dollar" are taken largely from public reports. Given the market orientation, their use is largely symbolic. Similarly, a conceptual framework, defense, or explanation for the selection of schools and indicators assumes an impact on student learning.

DISCUSSION:

This sample of performance indicator initiatives yields several common themes. First, performance indicators, for the most part, are variations of input/output mechanistic thinking. This orientation may be explained by the accountability theme as played by budgetary processes. Appropriations decision-makers are accustomed to trade-offs over resources because they are easily "priced" in the policy marketplace. Process indicators are not normally expressed in similar terms. These indicators most closely lend themselves to allocation efforts as proxy measures of process. Typical proxies that are convertible include class-size and full-time faculty per FTE student.

Second, a remarkable similarity of effort exists regardless of settings in North America and Europe. Despite enormous variations in the contexts of higher education, the overall design and implementation strategies are quite similar. In media systems, for example, the "league tables" are nearly identical in format, substance, dissemination, and validity. Applications in Great Britain, Canada, and the United States are filling the accountability void with highly successful marketing tabloids. The systemic approaches to performance indicators in Europe and North America share numerous characteristics, despite differences in size, scale, and complexity of state or national models.

The use of comparative criteria generated a number of observations. First, governance and organizational control patterns appear to be more hierarchical at the outset of model development, but appear headed toward a market orientation. Second, performance indicators emphasize resources and gross outcomes for use by policy makers and decision makers in monitoring existing systems. Although progress toward goal attainment (a focus on effectiveness) is alluded to in most models, the absence of measurable goals and objectives limits the power of this focus.

The emphasis of use in these models is more often to monitor or review current operations, oftentimes attempting comparisons despite the absence of consistency in

definitions or data capture practices. Such an emphasis is consistent with the observation that most models are unprepared to address conversion or process variables. Third, these models are built on a "leap of faith" that outcomes or performance levels observed can be attributed to something in the system, institution, or learning environment. The current architecture of these models does not support a developmental perspective. On the contrary, the absence of linkages back to the learning environments leaves internal decision-makers without information to "correct" or modify the common causes that explain variations in quality. Thus, the probability of developing actionable policy or programmatic recommendations based on information yielded from these systems is highly unlikely.

Fourth, because an impact on student learning is assumed to occur as a result of introducing any of these models, external policy makers will be denied specific information for either formative or summative evaluation. The danger is that future development of performance indicators will be more symbolic than functional.

STUDY IMPLICATIONS:

Institutional effectiveness is the broad umbrella for measuring a postsecondary organization's achievement of expected educational results through performance indicators. Institutional, program, and student outcomes form the base of institutional effectiveness, and ideally, flow from mission and goal statements.

This study raises several danger flags about assessment and performance indicator efforts. First, researchers, system designers, and decision makers must guard against easily quantifiable and readily available methods; a sort of one-size-fits-all approach. Decisions must be made about which outcomes are more important than others, that is, distinguishing the essential from the desirable. Institutional researchers and policy makers must be aware of the meanings that students, faculty, alumni, employers and others bring to performance indicator and outcomes assessment

initiatives. Equally significant, system designers must be receptive to the wide range of forces inside and outside the classroom across time that help shape the student:

> Assessment...looks less like a graduation snapshot than it does like a movie: "scenes" from the student's college experience, behavior and achievement over time, seen in multiple settings and contexts, from various points of view, sorted out and interpreted by thoughtful, involved audiences--including students themselves (Hutchings, 1989, p. 4).

Second, while this brief review and analysis suggests an inherent tension between quality improvement and external accountability mandates from accreditation commissions or governmental agencies, the undisciplined acceptance of "off-the-shelf" assessment instruments in support of performance indicator models and processes is short-sighted:

> Assessment per se guarantees nothing by way of improvement, no more than a thermometer cures a fever. Only when used in combination with good instruction (that evokes involvement, in coherent curricula, etc.), in a program of improvement, can the device strengthen education (Marchese, 1987, p. 8).

A third problem with performance indicator systems is the absence of a strong conceptual framework that supports tracing outcomes back to the learning environment. Effective models of higher order skill development require a strong theoretical base. One description of a national assessment effort suggests:

> [T]he most effective assessment of learning takes place when a theory or model of how instruction will lead to critical thinking or problem solving has been defined and tested (U.S. Department of Education, 1992, p. 6).

Faculty must be invited to lead in developing performance indicator systems, just as policy makers and decision makers need to articulate the intended uses of performance indicator data. Although there are several positive uses of performance indicators, such as building a common language for formative evaluation, (Nadeau, 1992), the

academy may quickly perceive such initiatives as punitive tools of an insensitive bureaucracy.

Fourth, care must be given to building the standards or peformance benchmarks. Standard-setting is a normative exercise with substantial consequences for key stakeholders in higher education. Perceived arbitrariness in standard-setting can undermine the credibility of the effort. The goals and objectives of the "Critical Choices" program in the State of Missouri illustrates the point. One of the goals addresses the development of national recognition of the state's universities by achieveing several objectives. One objective calls for:

> [I]ncreasing by 50 percent, by 1996, the amount of money awarded on a competitive basis to Missouri's public research universities from both the federal government and other external sources for basic and applied research grants and contracts (McClain, 1992, p. 10).

Typical of most indicators in this model, the rationale behind setting the increase at 50 percent was never discussed nor disseminated to faculty or academic administrators. As with so many models that rely exclusively upon quantitative indicators, the danger exists that decision makers may begin to believe that numerical statements are objective expressions of existing or desired conditions.

Fifth, because the ease of "roll-up" through levels of aggregation affects system design alternatives, information building requirements of performance indicator systems must include a range of standard activities from selection, capture, manipulation and reporting (Howard, McLaughlin, McLaughlin, 1989). Systems lacking the capacity to report through levels of aggregation have far more limited use than those with integrated databases.

Sixth, indicators may not necessarily act unidirectionally nor maintain positive interrelationships. For example, it is important to recognize the probable inverse relationship between rankings based on faculty publications and the quality of

teaching; that is, reputations associated with faculty publication, and those rankings based on some regional or national distinction in curricular matters or learning climate. It seems paradoxical that highly innovative institutions require an extraordinary commitment from the faculty to install and sustain a substantial pedagogical innovation. The little research that is produced by faculty in these situations is confined to formative evaluations of some type. Such scholarship and involvement may be unrelated to rank/tenure and promotion decisions. Although such work is of little use to the discipline-based outlets of traditional scholarship, a recommendation has been made to increase the status of such effort (Boyer, 1990).

This study has implications for the profession of institutional research as well. Offices of institutional research are under increased pressure to capture and report timely information on institutional effectiveness. Several factors can increase the capacity of the institutional research community to respond in a timely manner to the plethora of requests for performance data. First, institutional researchers have a fiduciary responsibility to help develop the conceptual underpinnings of the performance indicator movement. Their role must be expanded to that of an institutional anthropologist (Nedwek, 1993). Senior researchers have the opportunity to explore competing meanings of the core terms of higher education (academic success, quality), and have an obligation to bring alternative conceptual perspectives before decision makers and policy makers inside and outside the institution. Institutional researchers need to embrace the anthropological role in information building. The challenge for researchers is a "matter of defining one's role not as a chronicler but as a lively facilitator and interpreter of the communal process of self-discovery and self evaluation" (Gould, 1992, p. 49).

Although the higher education literature provides analytic distinctions among research action, recommending policy, and monitoring environments (Gill and Saunders, 1992), building effective performance indicator systems force an integration

of the traditional roles assumed by institutional researchers and policy analysts. Staff are cautioned to move beyond the "inward looking nature" of the profession by providing data in support of fund-raising, public and government relations (Jones, 1991).

Second, institutional researchers must be prepared to deal with varying levels of understanding and readiness among academic stakeholders to support performance indicator processes. This study has shown widespread problems of measurement (psychometric properties, internal validity, timing of program effect). Similarly, most initiatives make the leap of faith between resource indicators and performance outcomes. The conceptual difficulties may create a need for extensive retraining of staff that will enable them to address these complexities.

Third, researchers must be prepared to deal with the inherent contradiction between a steady, slow process of internal review of the academy with the demands for quick results (Ewell, 1987). A recent reaccreditation self-study remarks:

> The state agency demands for 'evidence' of institutional effectiveness, coupled with the expectations of accreditation bodies, create considerable pressure on the offices of institutional research to embrace outcome measures that are based more on data availability than on the authenticity of the assessment (Nedwek, 1993, p. 39).

IMPLICATIONS FOR FUTURE RESEARCH:

As a work in progress, this study sought to describe the current state of affairs in the design and implementation of a variety of performance indicator systems in Europe and North America. Future efforts will expand the number and type of cases and apply the nine comparative criteria developed in this paper. Of special interest will be developments in Finland, the Netherlands, and selected middle-European countries. North American cases will be expanded to include more mature initiatives, such as the Tennessee model.

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